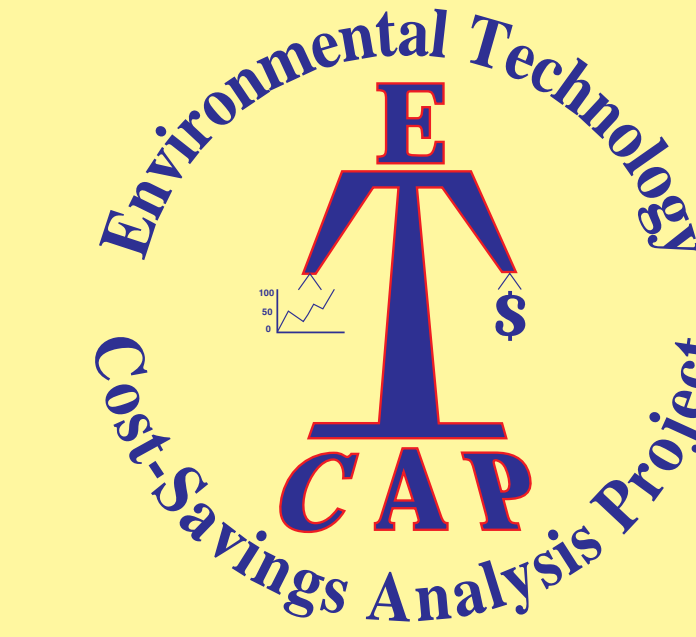


Estimating Cost Savings of Innovative Technologies

Ed Van Eeckhout, Scott DeMuth and Janet Harry, Los Alamos National Laboratory, Los Alamos, NM 87545



<http://www.lanl.gov/tsa/tsa4/enviro/etcap.html>

Los Alamos

ESTIMATING COMPLEX-WIDE SAVINGS:

OBJECTIVES:

- Unbiased economic analyses of specific environmental technologies that are proposed for use within the DOE complex
- Support the U.S. Department of Energy's Office of Science and Technology (OST) in their efforts to evaluate environmental technologies to accelerate cleanup, reduce risk, increase efficiency, and track costs of remediation activities

METHODOLOGY:

- Identify new and baseline technologies
- Define system and scenarios
- Characterize performance of technologies
- Develop life-cycle cost of technologies
- Evaluate cost effectiveness
- Estimate potential cost savings for applicable sites

1998:

- DOE-Developed Environmental Technologies: An Analysis of Cost Savings Complex Wide, October 1998, Mark Cummings, Scott DeMuth, Janet Harry, Andy McCown, Bruce Mutter, and Ed Van Eeckhout, Los Alamos LA-UR-98-5517, 39 pp.
- Reviewed cost data reported by RL, INEEL, SRS, RFETS (the heavy hitter sites) resulting in 98 reported potential cost savings of \$11B to \$20B

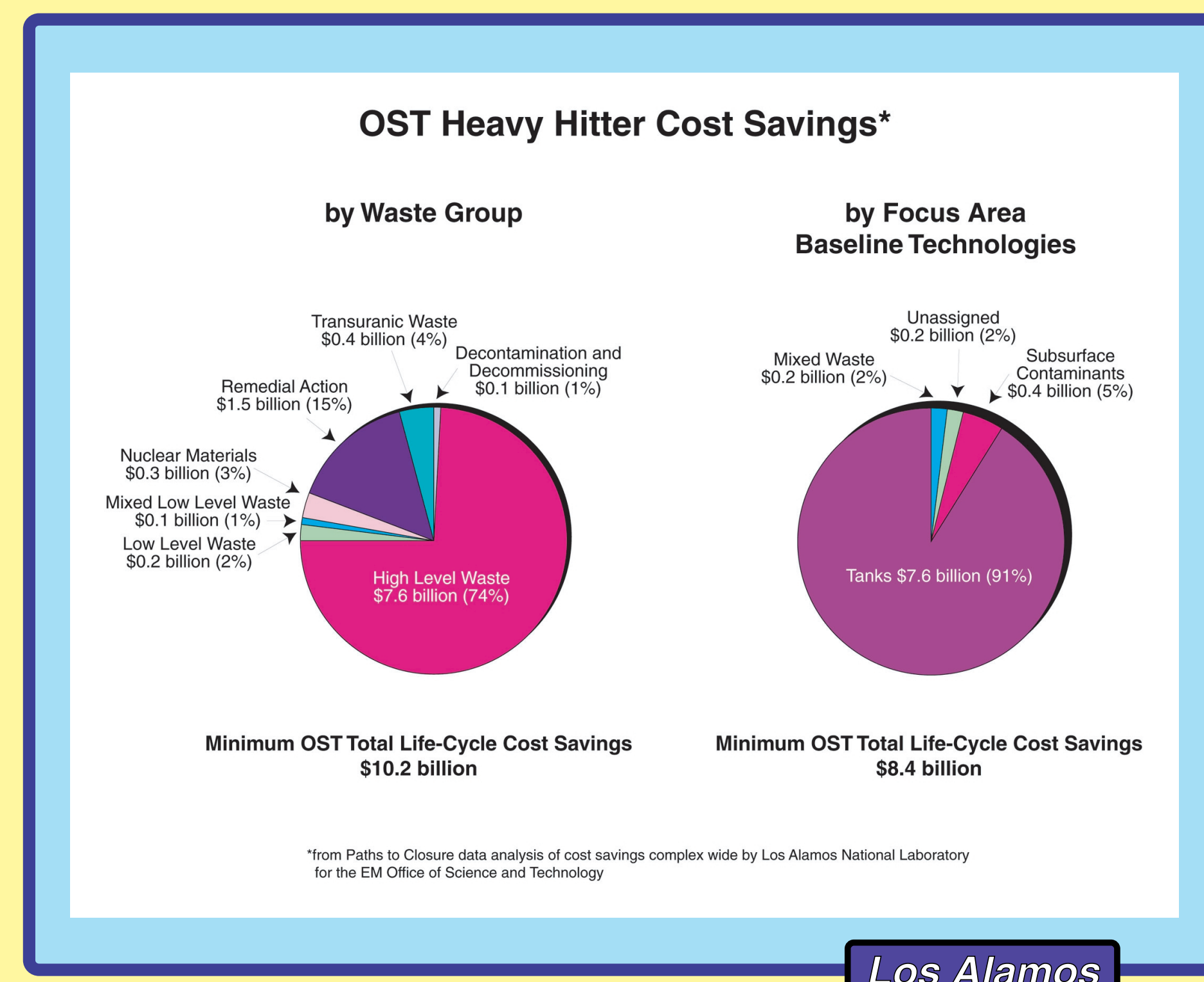


Table B1. Heavy hitters by field office.								
Site	Waste Type	Innovative Technology Name	OST Tech	LCCS	LCCS Min	LCCS Max	Cost	Technology Status
RL	Low Level Waste	Enhanced Sludge Wash	1	100	100	100	100	1
RL	Low Level Waste	LLW Immobilization	2	100	100	100	100	2
RL	Low Level Waste	HLW Immobilization	3	100	100	100	100	3
RL	Low Level Waste	HLW Disposal	4	100	100	100	100	4
RL	Low Level Waste	HLW Recycling	5	100	100	100	100	5
RL	Low Level Waste	HLW Reuse	6	100	100	100	100	6
RL	Low Level Waste	HLW Storage	7	100	100	100	100	7
RL	Low Level Waste	HLW Treatment	8	100	100	100	100	8
RL	Low Level Waste	HLW Dewatering	9	100	100	100	100	9
RL	Low Level Waste	HLW Drying	10	100	100	100	100	10
RL	Low Level Waste	HLW Evaporation	11	100	100	100	100	11
RL	Low Level Waste	HLW Crystallization	12	100	100	100	100	12
RL	Low Level Waste	HLW Filtration	13	100	100	100	100	13
RL	Low Level Waste	HLW Centrifugation	14	100	100	100	100	14
RL	Low Level Waste	HLW Ion Exchange	15	100	100	100	100	15
RL	Low Level Waste	HLW Membrane Separation	16	100	100	100	100	16
RL	Low Level Waste	HLW Adsorption	17	100	100	100	100	17
RL	Low Level Waste	HLW Precipitation	18	100	100	100	100	18
RL	Low Level Waste	HLW Neutralization	19	100	100	100	100	19
RL	Low Level Waste	HLW Acidification	20	100	100	100	100	20
RL	Low Level Waste	HLW Oxidation	21	100	100	100	100	21
RL	Low Level Waste	HLW Reduction	22	100	100	100	100	22
RL	Low Level Waste	HLW Solvent Extraction	23	100	100	100	100	23
RL	Low Level Waste	HLW Distillation	24	100	100	100	100	24
RL	Low Level Waste	HLW Extraction	25	100	100	100	100	25
RL	Low Level Waste	HLW Leaching	26	100	100	100	100	26
RL	Low Level Waste	HLW Washing	27	100	100	100	100	27
RL	Low Level Waste	HLW Rinsing	28	100	100	100	100	28
RL	Low Level Waste	HLW Drying	29	100	100	100	100	29
RL	Low Level Waste	HLW Evaporation	30	100	100	100	100	30
RL	Low Level Waste	HLW Crystallization	31	100	100	100	100	31
RL	Low Level Waste	HLW Filtration	32	100	100	100	100	32
RL	Low Level Waste	HLW Centrifugation	33	100	100	100	100	33
RL	Low Level Waste	HLW Ion Exchange	34	100	100	100	100	34
RL	Low Level Waste	HLW Membrane Separation	35	100	100	100	100	35
RL	Low Level Waste	HLW Adsorption	36	100	100	100	100	36
RL	Low Level Waste	HLW Precipitation	37	100	100	100	100	37
RL	Low Level Waste	HLW Neutralization	38	100	100	100	100	38
RL	Low Level Waste	HLW Acidification	39	100	100	100	100	39
RL	Low Level Waste	HLW Oxidation	40	100	100	100	100	40
RL	Low Level Waste	HLW Reduction	41	100	100	100	100	41
RL	Low Level Waste	HLW Solvent Extraction	42	100	100	100	100	42
RL	Low Level Waste	HLW Distillation	43	100	100	100	100	43
RL	Low Level Waste	HLW Extraction	44	100	100	100	100	44
RL	Low Level Waste	HLW Leaching	45	100	100	100	100	45
RL	Low Level Waste	HLW Washing	46	100	100	100	100	46
RL	Low Level Waste	HLW Rinsing	47	100	100	100	100	47
RL	Low Level Waste	HLW Drying	48	100	100	100	100	48
RL	Low Level Waste	HLW Evaporation	49	100	100	100	100	49
RL	Low Level Waste	HLW Crystallization	50	100	100	100	100	50
RL	Low Level Waste	HLW Filtration	51	100	100	100	100	51
RL	Low Level Waste	HLW Centrifugation	52	100	100	100	100	52
RL	Low Level Waste	HLW Ion Exchange	53	100	100	100	100	53
RL	Low Level Waste	HLW Membrane Separation	54	100	100	100	100	54
RL	Low Level Waste	HLW Adsorption	55	100	100	100	100	55
RL	Low Level Waste	HLW Precipitation	56	100	100	100	100	56
RL	Low Level Waste	HLW Neutralization	57	100	100	100	100	57
RL	Low Level Waste	HLW Acidification	58	100	100	100	100	58
RL	Low Level Waste	HLW Oxidation	59	100	100	100	100	59
RL	Low Level Waste	HLW Reduction	60	100	100	100	100	60
RL	Low Level Waste	HLW Solvent Extraction	61	100	100	100	100	61
RL	Low Level Waste	HLW Distillation	62	100	100	100	100	62
RL	Low Level Waste	HLW Extraction	63	100	100	100	100	63
RL	Low Level Waste	HLW Leaching	64	100	100	100	100	64
RL	Low Level Waste	HLW Washing	65	100	100	100	100	65
RL	Low Level Waste	HLW Rinsing	66	100	100	100	100	66
RL	Low Level Waste	HLW Drying	67	100	100	100	100	67
RL	Low Level Waste	HLW Evaporation	68	100	100	100	100	68
RL	Low Level Waste	HLW Crystallization	69	100	100	100	100	69
RL	Low Level Waste	HLW Filtration	70	100	100	100	100	70
RL	Low Level Waste	HLW Centrifugation	71	100	100	100	100	71
RL	Low Level Waste	HLW Ion Exchange	72	100	100	100	100	72
RL	Low Level Waste	HLW Membrane Separation	73	100	100	100	100	73
RL	Low Level Waste	HLW Adsorption	74	100	100	100	100	74
RL	Low Level Waste	HLW Precipitation	75	100	100	100	100	75
RL	Low Level Waste	HLW Neutralization	76	100	100	100	100	76
RL	Low Level Waste	HLW Acidification	77	100	100	100	100	77
RL	Low Level Waste	HLW Oxidation	78	100	100	100	100	78
RL	Low Level Waste	HLW Reduction	79	100	100	100	100	79
RL	Low Level Waste	HLW Solvent Extraction	80	100	100	100	100	80
RL	Low Level Waste	HLW Distillation	81	100	100	100	100	81
RL	Low Level Waste	HLW Extraction	82	100	100	100	100	82
RL	Low Level Waste	HLW Leaching	83	100	100	100	100	83
RL	Low Level Waste	HLW Washing	84	100	100	100	100	84
RL	Low Level Waste	HLW Rinsing	85	100	100	100	100	85
RL	Low Level Waste	HLW Drying	86	100	100	100	100	86
RL	Low Level Waste	HLW Evaporation	87	100	100	100	100	87
RL	Low Level Waste	HLW Crystallization	88	100	100	100	100	88
RL	Low Level Waste	HLW Filtration	89	100	100	100	100	89
RL	Low Level Waste	HLW Centrifugation	90	100	100	100	100	90
RL	Low Level Waste	HLW Ion Exchange	91	100	100	100	100	91
RL	Low Level Waste	HLW Membrane Separation	92	100	100	100	100	92
RL	Low Level Waste	HLW Adsorption	93	100	100	100	100	93
RL	Low Level Waste	HLW Precipitation	94	100	100	100	100	94
RL	Low Level Waste	HLW Neutralization	95	100	100	100	100	95
RL	Low Level Waste	HLW Acidification	96	100	100	100	100	96
RL	Low Level Waste	HLW Oxidation	97	100	100	100	100	97
RL	Low Level Waste	HLW Reduction	98	100	100	100	100	98
RL	Low Level Waste	HLW Solvent Extraction	99	100	100	100	100	99
RL	Low Level Waste	HLW Distillation	100	100	100	100	100	100
RL	Low Level Waste	HLW Extraction	101	100	100	100	100	101
RL	Low Level Waste	HLW Leaching	102	100	100	100	100	102
RL	Low Level Waste	HLW Washing	103	100	100	100	100	103
RL	Low Level Waste	HLW Rinsing	104	100	100	100	100	104
RL	Low Level Waste	HLW Drying	105	100	100	100	100	105
RL	Low Level Waste	HLW Evaporation	106	100	100	100	100	106
RL	Low Level Waste	HLW Crystallization	107	100	100	100	100	107
RL	Low Level Waste	HLW Filtration	108	100	100	100	100	108
RL	Low Level Waste	HLW Centrifugation	109	100	100	100	100	109
RL	Low Level Waste	HLW Ion Exchange	110	100	100	100	100	110
RL	Low Level Waste	HLW Membrane Separation	111	100	100	100	100	111
RL	Low Level Waste	HLW Adsorption	112	100	100	100	100	112
RL	Low Level Waste	HLW Precipitation	113	100	100	100	100	113
RL	Low Level Waste	HLW Neutralization	114	100	100	100	100	114
RL	Low Level Waste	HLW Acidification	115	100	100	100	100	115
RL	Low Level Waste	HLW Oxidation	116	100	100	100	100	116
RL	Low Level Waste	HLW Reduction	117	100	100	100	100	117
RL	Low Level Waste	HLW Solvent Extraction	118	100	100	100	100	118
RL	Low Level Waste	HLW Distillation	119	100	100	100	100	119
RL	Low Level Waste	HLW Extraction	120	100	100	100	100	120
RL	Low Level Waste	HLW Leaching	121	100	100	100	100	121
RL	Low Level Waste	HLW Washing	122	100	100	100	100	122
RL	Low Level Waste	HLW Rinsing	123	100	100	100	100	123
RL	Low Level Waste	HLW Drying	124	100	100	100	100	124
RL	Low Level Waste	HLW Evaporation	125	100	100	100	100	125
RL	Low Level Waste	HLW Crystallization	126	100	100	100	100	126
RL	Low Level Waste	HLW Filtration	127	100	100	100	100	127
RL	Low Level Waste	HLW Centrifugation	128	100	100	100	100	128
RL	Low Level Waste	HLW Ion Exchange	129	100	100	100	100	129
RL	Low Level Waste	HLW Membrane Separation	130	100	100	100	100	130
RL	Low Level Waste	HLW Adsorption	131	100	100	100	100	131
RL	Low Level Waste	HLW Precipitation	132	100	100	100	100	132
RL	Low Level Waste	HLW Neutralization	133	100	100	100	100	133
RL	Low Level Waste	HLW Acidification	134	100	100	100	100	134
RL	Low Level Waste	HLW Oxidation	135	100	100	100	100	135
RL	Low Level Waste	HLW Reduction	136	100	100	100	100	136
RL	Low Level Waste	HLW Solvent Extraction	137	100	100	100	100	137
RL	Low Level Waste	HLW Distillation	138	100	100	100	100	138
RL	Low Level Waste	HLW Extraction	139	100	100	100	100	139
RL	Low Level Waste	HLW Leaching	140	100	100	100	100	140
RL	Low Level Waste	HLW Washing	141	100	100	100	100	141
RL	Low Level Waste	HLW Rinsing	142	100	100	100	100	142
RL	Low Level Waste	HLW Drying	143	100	100	100	100	143
RL	Low Level Waste	HLW Evaporation	144	100	100	100	100	144
RL	Low Level Waste	HLW Crystallization	145	100	100	100	100	145
RL	Low Level Waste	HLW Filtration	146	100	100	100	100	146
RL	Low Level Waste	HLW Centrifugation	147	100	100	100	100	147
RL	Low Level Waste	HLW Ion Exchange	148	100	100	100	100	148
RL	Low Level Waste	HLW Membrane Separation	149	100	100	100	100	149
RL	Low Level Waste	HLW Adsorption	150	100	100	100	100	150
RL	Low Level Waste	HLW Precipitation	151	100	100	100	100	151
RL	Low Level Waste	HLW Neutralization	152	100	100	100	100	152
RL	Low Level Waste	HLW Acidification	153	100	100	100	100	153
RL	Low Level Waste	HLW Oxidation	154	100	100	100	100	154
RL	Low Level Waste	HLW Reduction	155	100	100	100	100	155
RL	Low Level Waste	HLW Solvent Extraction	156	100	100	100	100	156
RL	Low Level Waste	HLW Distillation	157	100	100	100	100	157
RL	Low Level Waste	HLW Extraction	158	100	100	100	100	158
RL	Low Level Waste	HLW Leaching	159	100	100	100	100	159
RL	Low Level Waste	HLW Washing	160	100	100	100	100	160
RL	Low Level Waste	HLW Rinsing	161	100	100	100	100	161
RL	Low Level Waste	HLW Drying	162	100	100	100	100	162
RL	Low Level Waste	HLW Evaporation	163	100	100	100	100	163
RL	Low Level Waste	HLW Crystallization	164	100	100	100	100	164
RL	Low Level Waste	HLW Filtration	165	100	100	100	100	165
RL	Low Level Waste	HLW Centrifugation	166	100	100	100	100	